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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,320	08/01/2003	Gerard J. Hayes	9314-43	5223
54414	7590	04/05/2006	EXAMINER	
MYERS BIGEL SIBLEY & SAJOVEC, P.A.			TRAN, CHUC	
P.O. BOX 37428			ART UNIT	
RALEIGH, NC 27627			PAPER NUMBER	
			2821	

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/632,320

Applicant(s)

HAYES, GERARD J.

Examiner

Chuc D. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 21 and 22 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-12 is/are allowed.
- 6) ☒ Claim(s) 1-6, 8, 13-19, 23 and 27-33 is/are rejected.
- 7) ☒ Claim(s) 7, 20 and 24-26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 January 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

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DETAILED ACTION

Response/Remarks

1. Applicant's arguments, filed January 13, 2006, claims 21 and 22 are cancelled; claims 1-20 and 23-33 are now remaining in the instant application. With respect to the rejection(s) of claim(s) 1-20 and 23-33 under 102(e) and 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Ying et al (USP. 6,995,715), Denda et al (USP. 6,480,614) and Geeraert et al (USP. 6,904,296).

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: ***The label number "1001" in Fig. 2A submitted on January 13, 2006.*** Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 23 rejected under 35 U.S.C. 102(e) as being anticipated by Geeraert et al (USP. 6,904,296).

Regarding claim 23, Geeraert et al disclose an antenna subassembly in Fig. 3, comprising:

- a planar antenna (7); a speaker (6), wherein the speaker is integrated with the planar antenna (Fig. 3); and the antenna subassembly further comprises an electronic circuit (1) including an audio driver circuit (15) coupled through a balanced feed (17) to the speaker (6) (Col. 3, Line 45 and 50) (Fig. 3).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-6, 8, 13-19 and 27-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ying et al (USP. 6,995,715) in view of Denda et al (USP. 6,480,614).

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Regarding claim 1, Ying et al disclose a wireless terminal in Fig.

1, comprising:

- a housing (165) including an earpiece on a front face of the housing;
- an electronic circuit (30) disposed within the housing (Fig. 5);
- a speaker (23) positioned proximate a back side of the electronic circuit (30)

within the housing (Fig. 5); wherein

- the speaker (23) is integrated with an antenna (20) (Fig. 1);
- the internal antenna (20) positioned proximate the speaker (23) on the back side of the

electronic circuit (30) within the housing (Fig. 1), wherein the electronic circuit (30) is positioned between the front face of the housing and the speaker (23 and internal antenna (20) (Fig. 1). However, Ying fails to teach that the speaker is a flat panel speaker. Denda et al disclose in Fig. 1 a conventional flat-panel speaker (Denda et al. Col. 1, Line 12); thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ying's which terminal with Denda's flat-panel speaker. The ordinary artisan would have been motivated to modify Ying et al in the manner described above for providing the impedance of the speaker can be set with high degree of flexibility (Denda. Col. 2, Line 20).

Regarding claim 2, Ying disclose that the flat-panel speaker (23) is integrated with the internal antenna (20) (Fig. 1).

Regarding claim 3, Ying disclose that the flat-panel speaker and the internal antenna each comprise conductive portions that reside on a first primary surface of a common substrate (Col. 13, Line 5).

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Regarding claim 4, Ying disclose that the internal antenna (20) is a planar antenna (Col. 5, Line 25).

Regarding claim 5, Ying disclose that the housing includes a keyboard (38) on the front face of the housing (Fig. 1).

Regarding claim 6, Ying et al disclose that the electronic circuit comprises a printed circuit board (30), and wherein the wireless terminal further comprises a forward acoustic passageway (15) extending from the flat-panel speaker (23) to the earpiece (30a) (Fig. 1), the forward acoustic passageway comprising at least one acoustic aperture (15) extending through the printed circuit board adjacent the flat-panel speaker (Fig. 1).

Regarding claim 8, Ying et al disclose that the electronic circuit comprises a printed circuit board (30) having a signal feed (28) and a ground plane (125) (Fig. 5), and wherein the internal antenna (20) is operatively coupled to the signal feed and the ground plane (Fig. 5).

Regarding claim 13, Ying disclose that the flat-panel speaker is configured to act as a parasitic element to the internal antenna (Col. 12, Line 50-55).

Regarding claims 14, Ying et al disclose that the flat-panel speaker (23) is configured to act as a parasitic element that provides a low frequency range response for the internal antenna (20) (Col. 8, Line 2).

Regarding claim 15, Ying et al disclose a wireless terminal in Fig. 1, comprising:

- a housing (165) including an earpiece on a front face of the housing;
- an electronic circuit (30) disposed within the housing (Fig. 5);
- a speaker (23) positioned proximate a back side of the electronic circuit (30)

within the housing (Fig. 5); wherein

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- the internal antenna (20) positioned proximate the speaker (23) on the back side of the electronic circuit (30) within the housing (Fig. 1), wherein the speaker is configured to act as a parasitic element to the internal antenna (Col. 12, Line 50-55) and provides an increased bandwidth frequency response for the internal antenna (Col. 9, Line 2) and (Col. 8, Line 9).

However, Ying fails to teach that the speaker is a flat panel speaker. Denda et al disclose in Fig. 1 a conventional flat-panel speaker (Denda et al. Col. 1, Line 12); thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ying's which terminal with Denda's flat-panel speaker. The ordinary artisan would have been motivated to modify Ying et al in the manner described above for providing the impedance of the speaker can be set with high degree of flexibility (Denda. Col. 2, Line 20).

Regarding claims 27 and 29, Ying et al disclose a wireless terminal in Fig. 1, comprising:

- a planar antenna (20) (Col. 5, Line 25);
- an electronic circuit (30) disposed within the housing (Fig. 5);
- a speaker (23) is integrated with the planar antenna (20) (Fig. 1);

the speaker is configured to act as a parasitic element to the internal antenna (Col. 12, Line 50-55) and provides an increased bandwidth frequency response for the internal antenna (Col. 9, Line 2) and (Col. 8, Line 9). However, Ying fails to teach that the speaker is a flat panel speaker. Denda et al disclose in Fig. 1 a conventional flat-panel speaker (Denda et al. Col. 1, Line 12); thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ying's which terminal with Denda's flat-panel speaker. The ordinary artisan

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would have been motivated to modify Ying et al in the manner described above for providing the impedance of the speaker can be set with high degree of flexibility (Denda. Col. 2, Line 20).

Regarding claim 28, Ying disclose that the flat-panel speaker is configured to act as a parasitic element that provides a low frequency range response for the planar antenna (Col. 8, Line 2).

Regarding claims 16 and 30, Ying et al disclose that the flat-panel speaker is configured to act as a parasitic element that provides a multi-band frequency response for the internal antenna (Col. 1, line 66).

Regarding claims 17 and 31, Ying et al disclose that the internal antenna comprises a planar inverted-F antenna (PIFA) (Col. 2, line 14).

Regarding claims 18 and 32, Ying et al disclose that the internal antenna comprises a single-contact patch antenna (Fig. 1).

Regarding claims 19 and 33, Ying et al disclose that the internal antenna comprises a monopole antenna (Fig. 4).

Allowable Subject Matter

7. Claims 9-12 are allowed.

Reasons for Allowance

8. The following is an examiner's statement of reasons for allowance:

Prior art fails to disclose the combination of the limitation as set forth in the claim: an internal antenna positioned proximate the speaker on the back side of the electronic circuit within the housing; and wherein the electronic circuit includes an audio driver circuit coupled through a balanced feed to the speaker in independent claim 9.

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Claims 10-12 are allowable for the reasons given above because of their dependency status from independent claim 9.

9. Claims 7, 20 and 24-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Citation of relevant prior art

Prior art Annamaa et al (US 2004/0171404) disclose arrangement for integrating a radio phone structure.

Prior art (US 2003/0107478) disclose architectural sound enhancement system.

Inquiry

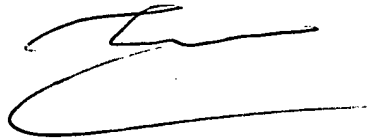
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuc D. Tran whose telephone number is (571) 272-1829. The examiner can normally be reached on M-F Flex hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TC
March 21, 2006



THO PHAN
PRIMARY EXAMINER